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**LEADERSHIP IN ECOLOGICAL EDUCATION FOR THE BENEFIT  
OF STABLE DEVELOPMENT OF THE URALS  
(URALS SCIENTIFIC SCHOOL OF ECOLOGICAL PEDAGOGY)**

**KEYWORDS:** ecological pedagogy; scientific worldview; scientific school; ecology; ecological education; leadership.

**ABSTRACT.** The 21<sup>st</sup> century humankind faces the problem of creating a new culture of interaction with nature. Ecological concepts penetrate all spheres of scientific and social life and represent a factor that unites the world community in the process of globalization. Ecology becomes the leader of the scientific worldview, and the ecological education plays a priority system-forming role in relation to education in general. The changing worldview radically modifies the education methodology on all levels. The ecological worldview influences other branches of science, including socio-humanitarian ones, and, in addition, to a large extent determines the scientific climate of the epoch. It is necessary to create in bachelor's and master's degree students a holistic image of the global evolutionism as the integrative general-scientific system of knowledge and methods of world cognition, to widen the scientific worldview by bringing in the modern evolutionary conceptions, approaches, principles and methods, and to facilitate the process of transformation of the global evolutionism into an efficient method of theoretical analysis and practical positive solution of urgent problems. The study of the problem of formation of the students' ecological worldview as a holistic image of the surrounding world, acquisition of the system of ecological knowledge and methods of nature cognition, evolution of the personally significant views of the real world, and the development of a value-based responsible attitude towards nature becomes especially urgent.

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**ЛИДЕРСТВО В ЭКОЛОГИЧЕСКОМ ОБРАЗОВАНИИ  
В ИНТЕРЕСАХ УСТОЙЧИВОГО РАЗВИТИЯ НА УРАЛЕ  
(УРАЛЬСКАЯ НАУЧНАЯ ШКОЛА ЭКОЛОГИЧЕСКОЙ ПЕДАГОГИКИ)**

**КЛЮЧЕВЫЕ СЛОВА:** экологическая педагогика; научная картина мира; научные школы; экология; экологическое образование; лидерство.

**АННОТАЦИЯ.** В XXI в. Человечеству предстоит создать новую культуру взаимоотношений с природой. Экологические представления проникают во все сферы научной и общественной жизни, являются фактором, объединяющим мировое сообщество в процессе глобализации. Экология становится лидером научной картины мира, а экологическое образование играет приоритетную и системообразующую роль по отношению к образованию в целом. Изменение научной картины мира принципиально меняет методологию образования на всех уровнях. Экологическая картина мира оказывает влияние на другие отрасли науки, в том числе и социально-гуманитарные, и, кроме того, определяет в значительной степени научный климат эпохи. Необходимо создать у студентов-бакалавров и магистров целостное представление о глобальном эволюционизме как интегративно-общенаучной системе знаний и способов освоения мира, расширить научную картину мироздания за счет привлечения современных эволюционных концепций, подходов, принципов и методов, а также способствовать превращению глобального эволюционизма в эффективное средство теоретического анализа и практического позитивного решения актуальных проблем. Особенно актуальным становится исследование проблемы формирования у обучающихся экологической картины мира как целостного образа окружающего мира, усвоения системы экологических знаний и способов познания природы, развития личностно значимых мировоззренческих взглядов на реальную действительность, формирование ценностного, ответственного отношения к природе.

Step by step, people begin to realize that the potential opportunities of the contemporary civilizations have either been used up or are close to exhaustion. We are facing the challenge to work out a new civilization paradigm. This is one more important methodological statement of the general system of ecological worldview.

We believe that the development of eco-

logical education in the context of the new scientific worldview formation will be an adequate response to the new global challenges of today. World outlook and philosophical aspects of the modern worldview rest on *ecological philosophy*, and methodology of ecological education should be based on *ecological pedagogy*. The change of the worldview brings about changes in the content and methods of

teaching, and ecologization of the process of education acts as the priority area of humanization and fundamentalization of any educational process.

True understanding of the role of ecological education had formed in Russia only by the 1980s. Thus, a new scientific school was established in 1987 in the Urals (Ekaterinburg), as a result of the All-Russian scientific-practical conference in ecological education held at the USPU. In 2004, the Urals scientific school of ecological education was officially recognized at the sitting of the Bureau of the Urals Branch of the Russian Academy of Sciences. It was agreed that Doctor of Pedagogy, Professor L. V. Moiseeva should be considered the founder of the scientific school. The decision of the Bureau ran as follows: "The scholars of the Urals Region carry out research in the field of ecological pedagogy which is really significant for the development of the modern system of education ensuring the correspondence of the education content to the new scientific worldview, in which ecology plays an integrating role uniting the traditionally separated scientific and humanitarian subsystems of education. A new Laboratory on Ecological Education should be organized under the leadership of L. V. Moiseeva".

The dynamics of the development of the scientific school "Ecological Pedagogy" is manifested in widening the range of problems solved by the scientific school, in the growing need of education institutions for the scientific school research results, and in recognizing the given results significant via their publication by various publishers.

The mission of the scientific school consists in facilitating continuing ecological education in the region, creation of the unified information-methodological space in this sphere, and amalgamation of the creative potentials of the teachers. Its task is to initiate the design of new pedagogical means, modern educational technologies and diagnostic tools called on to ensure the formation of ecological culture in the sphere of formal and non-formal education and enlightenment of the broad masses of the people, and to organize counseling for all participants of the ecological-educational process via modern information technologies (computer-assisted forum, distance counseling, network projects). It is also aimed to hold regular scientific-practical conferences on the problems of regional ecological education and to prepare and publish popular-science, educational-methodological and scientific literature on ecological education, environmental protection and ecological culture.

As a result of scientific research and practical implementation of its outcomes, the basic theoretical and methodological approaches to

the formation of the terminology of ecological pedagogy at various stages have been worked out. They have been realized in the Urals for over two decades.

In accordance with the accepted scientific research position, ecological pedagogy may be defined as a branch of pedagogy studying the regularities of development of an ecologically healthy personality characterized by ecological education, ecological world outlook, ecological consciousness, ecological thinking and ecological culture. The scientific school was further developed within the framework of the special Federal Program "Scientific and scientific-pedagogical personnel of innovative Russia" – more than 30 young scholars defended their dissertations in ecological education.

A new scope of research is being formed in the modern natural science – global matter regarded both as a system of various properties and as a part of historical evolution where the genetic coherence of these properties is realized. The scientific worldview should be connected with the modern universalism including universal methodology and its achievements. It must be formed through self-organization, and should operate the parameters independent of the concrete ontological sphere or the structural level of organization of nature; all this is ensured by the network ecology.

In contrast to rigorous theories, the scientific worldview possesses the necessary visuality, is characterized by a combination abstract theoretical knowledge and visual images created with the help of certain models. The scientific worldview is a special form of systematization of knowledge, primarily qualitative generalization and world-outlook and methodological synthesis of various scientific theories manifested in their inherent paradigms (certain stereotypes of understanding objective processes and the methods of their cognition and interpretation). The previous worldviews were dominated by the physics theories: by classical mechanics – in the mechanical worldview, and by quantum mechanics – in the quantum field world view.

Nowadays, many famous scientists, including I. Prigozhin, state that the physicists have lost their exclusive right of holistic description of the scientific worldview. In order to preserve the high level of fundamental education traditionally specific of the Russian higher education it is necessary to find new approaches to the formation of the up to date scientific worldview – an ecological worldview, and create a fresh scientific worldview – ecological worldview. The concept of global evolution has become the result of synthesis and generalization of the sphere of knowledge of many, if not all, branches and areas of contemporary science. The methodology of global evo-

lutionism has begun to play an important role not only as a paradigmatic integrator of scientific knowledge but also as a mediator of evolutionary ideas in pedagogy in the process of development of the new content of university education. Scholars believe today that rational science cannot form the ecological worldview. The ecological education based on the knowledge of ecological laws has not brought the expected results either. The effect of an artistic image upon man and the feeling of the beauty in cognizing nature generate intuitive insight of not only scientists but of all those who are disposed to observe and carefully look at and listen to the surrounding world. Landscapes artfully depicted by poets reflect the multidimensional meaning created by the unity of sounds, feelings, emotions and relationships. The feeling of the live connection with nature via a work of art helps the child enter its unfathomable and mysterious world. A thought expressed in a poetic form acquires a new meaning. Interrelationships between rhythm, deep philosophical content, symmetry and beauty in nature cognition help us unite the image of the world and the scientific worldview, which, in our opinion, both creates a holistic idea about the world uniformity and presents an ecological worldview. The genetic relationship and continuity between different forms of its cognition by science, philosophy, mythology, religion and art are the natural preconditions for development and enhancement of this tendency. When they resonate, they provide a new vision of the sources of the human mind and culture and bring in a deeper understanding of the connection of the person's spiritual world with nature and practical activity. Science about nature gives a person objective knowledge of the laws of world creation which allows him to match his activity to the natural cycles. Non-natural knowledge and art also help the person feel the harmony of color, sound, movement or poetic words, feel the deep interrelationship between all things and beings, and work out the attitude to certain real life phenomena. The subjective image of the ecological worldview can be traced in its making; we can assess it and make predictions about the further change of the individual ecological worldview development with the aim of early prevention of undesirable events (manifestations of aggression towards natural objects, callousness, etc.) and rehabilitation and provision of individual and object-oriented assistance. To this end, we have defined the nature and genesis of the ecological worldview, the peculiarities of development of the subjective image of the ecological worldview in students and the structure of the ecological worldview and its imagery-conceptual model. We have also figured out the elements of the

subjective image of the ecological worldview in order to determine the criteria and parameters of the phenomenon under diagnostic procedure. The given tools of getting objective information about the character of change of the individual worldview in the process of cognitive activity of students provide us data about the system of ecologization of education.

Thus, our aim was to carry out an analysis of the research data and on its basis publish the book "Ekologicheskaya kartina mira: zakonornosti formirovaniya v period detstva. Volnovoy podkhod" [1]. The book outlines the essence of ecological culture as a methodological strategy of natural-science education making it possible to enhance its educational potential; defines the notion of "ecological worldview" as the basic notion of ecological education and the central concept of the given research; specifies the meaning and gives an authored interpretation of the notion of "ecological worldview" and looks at the given category as a pedagogical means of realization of the ecological worldview in natural-science education of schoolchildren; considers the essence of the worldview, defines the notion of "ecological worldview" and studies the mechanism of its formation in the growing generation from the modern positions of the vibration wave-based theory of the world; reveals the causes of low efficiency of the work aimed at formation of the ecological worldview; designs a Wave-based Model of development of the ecological worldview; demonstrates its interdisciplinary character; and determines the priority areas of formation of the ecological worldview as a cognitive model. Today, the method of visualization of abstract notions on the basis of resonant response between the individual norms of persons and the social, moral-spiritual and ethical norms and rules of harmonious interaction involving the model support images of the norm has been implemented in education institutions. And we also use the algorithm of pedagogical activity involving the model support images of the norm in the process of visualization of abstract notions and the system of ecological values. We have worked out the approaches to use the method of visualization of the basic abstract notions of the worldview (unity, order, connection, responsibility, attitude, transition, maturity, etc.). We have also designed a universal approach to the process of formation of the ecological worldview and the practical toolkit and visual-didactic methodological material. We recommend using those visual aids that facilitate the perception of the uniform wave-based nature of the world and the human being, the development of the sensory system which develops fine sensory perception of the world's versatility. The criteria and the param-

eters of harmonious interaction between the subjects and the natural objects and phenomena help us evaluate the results of pedagogical intervention on the basis of the pedagogical monitoring aimed at revealing the students' ecological worldview as the main indicator of the ecological education realization. The diag-

nostic methods of pedagogical monitoring we have worked out are widely used not only in the Urals but all over the country. We believe that the pedagogical monitoring of the ecological worldview development is a complex process as it combines the features of didactic and educational monitoring.

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